

WEST RIVER CONVEYORS | BEHIND THE STEEL SERIES #3

The **Hydraulic Take-Up Unit** is a critical piece of any belt conveyor system. Its main job is to maintain proper belt tension to ensure efficient conveyor operation. Without proper belt tension, the belt can slip on the drive pulley and become misaligned or sag. As conveyor systems lengthen, it's imperative to install take-up units at strategic locations along the conveyor belt to prevent belt sag, assist in smoother start-ups by decreasing belt slippage, and allow for more slack during installation and splicing.

Typical applications for hydraulic take-up units include overland conveyors with long runs and significant belt stretch, underground conveyor systems where space is limited and reliability is critical, high tonnage aggregate plants, and conveyors with frequent start/stop cycles where tensions can change rapidly.

Smart Feature

Take-up pulley bearings can match the bearings on other components of a conveyor system, eliminating the need for additional spare parts inventory.

TAKE-UP FRAME

Made from heavy-duty structural steel, the take-up frame is manufactured and designed for easier installation and maintenance. West River uses heavy-duty S-Beams to reduce twisting and distortion during belt moves, outlasting the competition.



MODULARITY

Modular design allows for flexibility, scalability, modification, and cost-effective maintenance.

- Hydraulic cylinder mounted on either side
- Bolt-in crossmembers

TAKE-UP PULLEYS

There are both a movable and a stationary pulley on a take-up unit. The **movable pulley A** is mounted on a sliding carriage frame that is driven by a hydraulic cylinder. The **stationary pulley B** is mounted to the take-up frame. The pulley and carriage work together to provide tension to a conveyor belt as it stretches. Adequate tension from the push and pull of both pulleys help the belt remain aligned and centered on the conveyor system.

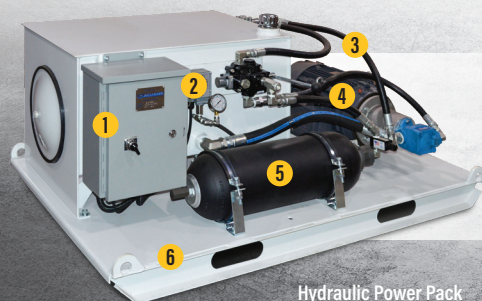


HYDRAULIC CYLINDER

A hydraulic power pack pressurizes the hydraulic fluid and sends it to the cylinder. The cylinder then extends or retracts to move the take-up pulley, based on the pressure.

How do hydraulic take-up units work?

Hydraulic cylinders are mounted in line with a take-up pulley and connected to a *hydraulic power pack* that maintains system pressure allowing the cylinders to move automatically, keeping the belt tension constant.



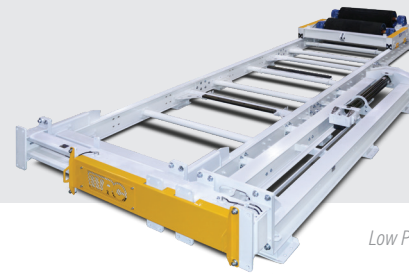
Hydraulic Power Pack

- Fuses, Contactor Overload
- Pressure Gauge
- Hoses/Fittings
- Electric Motor
- Reservoir Tank
- Power Pack Frame

Safety guarding is installed around moving parts

TAKE-UP GUARDING

Guarding is an essential part of any conveyor system that is designed to protect workers from moving parts and pinch points. Guarding is necessary to comply with MSHA and OSHA regulations and can also protect equipment from accidental impact and tampering.



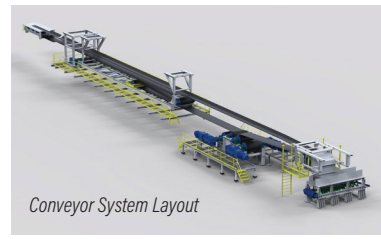
Low Profile Hydraulic Take-Up

Conveyor System Comparison:

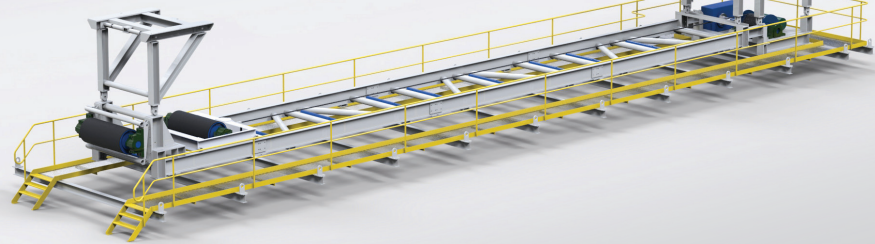
FEATURE	WITH TAKE-UP UNIT (HYDRAULIC OR OTHER)	WITHOUT TAKE-UP UNIT
BELT TENSION	Maintained automatically or adjustably; optimal performance	Manual or fixed tension leads to sagging or overstressing
BELT LIFE	Extended due to proper tension and alignment	Reduced due to increased wear, misalignment, or slippage
SYSTEM RELIABILITY	Higher — consistent performance with fewer stoppages	Lower — prone to stoppages, belt drift, and emergency fixes
MAINTENANCE FREQUENCY	Lower — automated tensioning reduces wear and manual adjustments	Higher — requires frequent inspection and manual corrections

HYDRAULIC TAKE-UP UNIT BENEFITS:

- Continuously maintains belt tension without manual adjustments
- Take-up units can be mounted vertically or horizontally if space is limited
- Improves belt life when proper tension is maintained across the belt ultimately reducing wear and tear
- Absorbs and dampens tension changes in frequent starts and stops
- Provides enhanced safety because manual adjustments are no longer necessary
- Reduces wear on lagging, pulleys and bearings because belt is tracking properly with proper tensioning



Conveyor System Layout



Conceptual isolated rendering of the hydraulic take-up unit frame designed for roof mount